



The Center for Naval Analyses

## The Retirement Choice

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# The Retirement Choice<sup>1</sup>

## Introduction

Military personnel who entered service after 31 July 1986 and who are eligible and intend to serve for 20 years must choose between two retirement plans at their 15th year of service.<sup>2</sup> Once the final selection is made, the choice is irrevocable. What are the options?

1. *High-3 retirement plan*: Retirement pay is based on the highest average basic pay for 36 months of a person's career. These are usually the last 3 years.
2. *REDUX retirement plan plus a \$30,000 bonus that is given at the 15th year of service*: In return for the bonus, REDUX provides smaller retirement checks.

How should Marines, Sailors, Airmen, and Soldiers decide which option to take? The Department of Defense has a website<sup>3</sup> that provides information and examples to help in making the decision. At the Center for Naval Analyses, we did some calculations using a different approach that we believe is useful in evaluating these retirement choices. We start by describing the bonus in the second choice as an early, partial cash-out of the servicemember's retirement pension. This \$30,000 cash-out will be paid back later in the form of reduced retirement checks. We're hopeful that, by providing information on how much this cash-out will cost in smaller, future retirement income, we can help servicemembers make more informed decisions about which plan to select.

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1. Our work benefited from the support and review of CNA colleagues Gerald Cox, Donald Cymrot, Michael Hansen, and Ann Parcell. Kathleen Utgoff (formerly Director of the Pension Benefit Guarantee Corporation), John Warner (Clemson University), Susan Woodward (formerly Chief Economist at the Security and Exchange Commission), and Neil Singer (formerly Senior Defense Analyst at the Congressional Budget Office) also provided critical insights. We thank them all for their help.
  2. Selection of the retirement plan begins at about 14.5 years of service.
  3. The address of the DOD website is <http://pay2000.dtic.mil>.

First, though, let's briefly look at the provisions of military retirement in general and then more specifically at the two plans. Both pension choices have the following features:

- Both provide retirement income as a percentage of the average of the highest 36 months of basic pay. There is no risk; the retirement payments are specified by law and guaranteed by the full faith and credit of the U.S. government.
- Both are "tax-sheltered" because the member pays no taxes on the money until retired pay is received.<sup>4</sup>
- Both are protected against inflation. The High-3 has full inflation protection because it changes yearly with the Consumer Price Index (CPI), and bonus/REDUX has less protection (CPI minus 1 percentage point). The value of inflation protection for retirement pay cannot be overemphasized. Most military members will be retired almost 40 years. In 40 years, one can expect prices to increase at least four times, meaning what costs \$1 at military retirement will end up costing \$4.<sup>5</sup>

To summarize, military pensions are risk-free, tax-sheltered, inflation-adjusted annuities with options for spousal benefits (Survivor Benefit Plan) upon the death of the member. Such pension provisions are very expensive; they are currently offered by only a few private-sector companies.

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4. The services pay into the retirement fund each year, and the fund grows while the member is in the service. The servicemember has no tax liability for the service's contributions to the retirement fund.
  5. The Consumer Price Index in 2000 was over 5 times the level in 1960. This period includes the sharp inflation in 1974 (12.3 percent) and in 1979 (13.3 percent) and 1980 (12.5 percent). The commonly assumed 3.5-percent inflation rate leads to a fourfold increase in prices over a 40-year period.

## How much is retirement income reduced in the REDUX option?

Against this backdrop, let's turn to the retirement choice in the 15th year of service. Choosing bonus/REDUX reduces income in retirement. The higher the grade and the lower the years of service at retirement, the more retirement income is reduced. In short, very fast-trackers who retire very early are penalized most severely. For *all* military personnel, however, REDUX retirement income is substantially smaller than retirement income under High 3.<sup>6</sup>

Some will find it easier to understand how the two plans differ by comparing verbal descriptions of the plans (table 1), whereas others will prefer to look at figures that describe the different retirement payments under the two plans (figures 1 through 3).

Table 1. Retirement choices for those who entered the service after 31 July 1986—based on highest average monthly basic pay over highest 36 months

	High-3 retirement	\$30,000 bonus at 15 years of service and REDUX retirement
Percentage of basic pay at 20 years of service	50.0%	40.0%
Increase for each year of service past 20	2.5%	3.5%
At 30 years of service	75.0%	75.0%
Yearly cost-of-living adjustments	Full CPI <sup>a</sup>	CPI minus 1 percentage point
Age 62	Retirement payments set equal to each other at age 62 (see figures 1 through 3)	
Age 63 onward	Full CPI adjustments	CPI minus 1 percentage point

a. Consumer Price Index for urban wage earners and clerical workers.

6. Later in this paper, we discuss the thrift savings plan (TSP) and other investment options with the bonus. Thus, these examples assume that the servicemember pays taxes on, and spends, the bonus.

Let's look at some examples. To calculate the two retirement pay streams from the vantage point of someone at 15 years of service, we first need to make some assumptions. We assume the following:

- Military pay will grow at 3.5 percent per year until the service-member retires.
- The CPI will grow at 3.5 percent per year.
- The servicemember will live to age 79.<sup>7</sup>
- Enlisted members are in the 15-percent tax bracket. After paying taxes on the bonus, a servicemember receives \$25,500. Officers are in the 30-percent tax bracket. After paying taxes on the bonus, an officer receives \$21,000.

These assumptions are used throughout this analysis.

Figure 1 shows the two after-tax retirement pay streams, REDUX and High-3, from the first retirement year until age 79. We first look at an E-7 who expects to retire at age 38 with 20 years of service. We see a sharp reduction in retirement pay under REDUX until age 62, then a re-indexing that equates the two retirement pays, followed by a gradual erosion in REDUX retirement pay after age 62 when compared with High-3. For this servicemember, total retirement pay is reduced by \$248,229 if REDUX/bonus is selected.

Figure 2 shows the difference in payments for a servicemember who expects to retire at age 42 as an E-8 with 24 years of service. Here the reduction in retired pay is about the same as that for the E-7 who retires with 20 years of service (figure 1). Although the servicemember is retired a smaller number of years, the retirement pay lost each year is larger.

Figure 3 shows the situation for an officer who expects to retire as an O-6 at age 50 with 26 years of service. We use the same assumptions as earlier except that the officer's tax bracket is 30 percent. Here the officer's retired after-tax pay is \$258,011 less under REDUX.<sup>8</sup>

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7. The Statistical Abstract of the United States, published in 2000, reports a life expectancy of 38.7 years for those aged 40, so we have used an overall life expectancy of 79 years for military retirees.

Figure 1. E-7 retiring at 38 with 20 years of service, 15% tax bracket

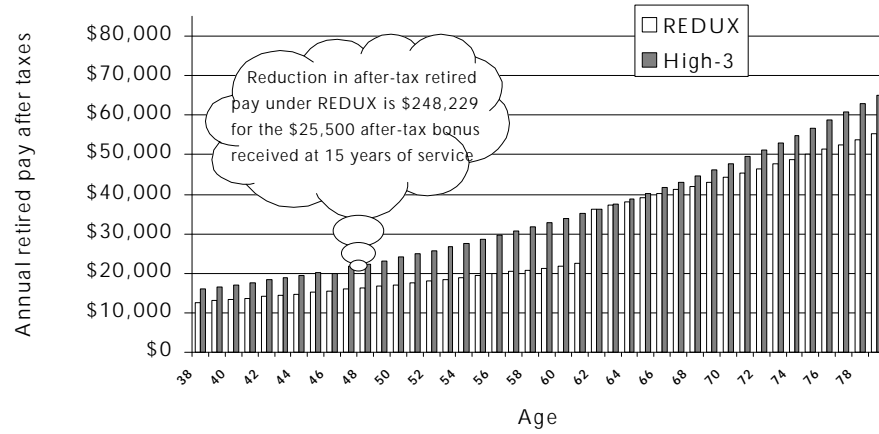
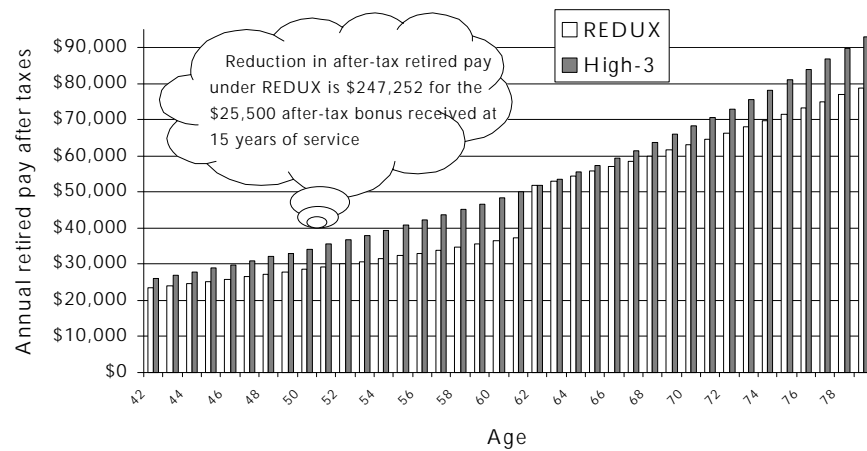
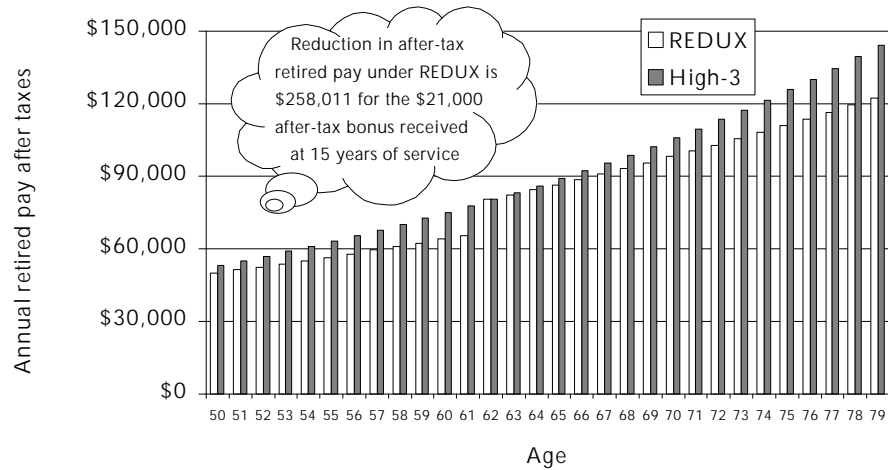


Figure 2. E-8 retiring at 42 with 24 years of service, 15% tax bracket



8. The appendix illustrates these three situations in a somewhat different format.

Figure 3. O-6 retiring at 50 with 26 years of service, 30% tax bracket



Let's turn next to the way we propose that servicemembers evaluate the smaller retirement pay they will receive if they select the \$30,000 bonus and REDUX.

## Get paid now or get paid later

Bonus-takers will get some of their retirement income early, at the 15-year-of-service point. Probably the best way to think about this is to consider REDUX's \$30,000 bonus as a early cash-out of part of one's retirement pension. We can calculate how much this cash-out costs the member by thinking of the cash-out as a "loan" to be paid back later by smaller retirement paychecks.

This so-called loan, given at 15 years of service, is paid back over the entire servicemember's retired lifetime. We're all familiar with mortgages, car loans, and credit card debt. Mortgages and car loans have fixed loan periods, often 5 years for cars and 30 years for mortgages. Credit card debt is a little different, requiring only a minimum pay-

ment per month. We characterize all these loans by the interest rates and interest payments attached to them.

The \$30,000 bonus has a rather peculiar payback scheme. The servicemember pays nothing until retirement, pays quite a bit from the beginning of retirement until age 62, and then continues to pay back smaller amounts over the rest of his or her lifetime. The “payments” are the differences in the height of High-3 and REDUX bars in figures 1 through 3. Although this payment scheme is peculiar, we can calculate the implied interest rate, or APR. We have done that for a variety of situations and show the results of these calculations in table 2 for enlisted personnel and in table 3 for officers.

Let’s look at table 2. If a servicemember expects to retire as an E-6 with 20 years of service at age 40, our calculations show that, by selecting bonus/REDUX at 15 years of service, the servicemember:

- Pays an implicit interest rate of 10.4 percent for the cash-out
- Loses \$193,630 after-tax retirement income.

Because we are doing all these calculations after taxes, the table shows an “interest” payment of \$168,130, the difference between \$193,630 and the after-tax amount of the loan (\$25,500).

Table 2. Bonus/REDUX choice for enlisted personnel (15% tax rate)<sup>a</sup>

Characteristics at retirement	Implicit interest rate for bonus	Total reduction in after-tax retirement pay	“Interest” <sup>b</sup>
E-6 at 20 years of service			
Age 38	10.7%	\$219,972	\$194,572
Age 40	10.4%	\$193,630	\$168,130
Age 42	10.1%	\$169,761	\$144,261
E-7 at 20 years of service			
Age 38	11.6%	\$248,229	\$222,729
Age 40	11.3%	\$218,506	\$193,006
Age 42	10.9%	\$191,571	\$166,071
E-7 at 22 years of service			
Age 40	9.9%	\$234,349	\$208,849
Age 42	9.6%	\$205,208	\$179,708
Age 44	9.2%	\$179,005	\$153,505
E-8 at 20 years of service			
Age 38	12.3%	\$274,945	\$249,445



Table 2. Bonus/REDUX choice for enlisted personnel (15% tax rate)<sup>a</sup>

Characteristics at retirement	Implicit interest rate for bonus	Total reduction in after-tax retirement pay	"Interest" <sup>b</sup>
Age 40	12.0%	\$242,018	\$216,518
Age 42	11.7%	\$212,183	\$186,683
E-8 at 22 years of service			
Age 40	10.5%	\$260,627	\$235,127
Age 42	10.2%	\$228,221	\$202,721
Age 44	9.8%	\$199,076	\$173,576
E-8 at 24 years of service			
Age 42	9.1%	\$247,252	\$221,752
Age 44	8.7%	\$215,556	\$190,056
Age 46	8.3%	\$187,325	\$161,825
E-8 at 26 years of service			
Age 44	7.9%	\$233,803	\$208,303
Age 46	7.5%	\$203,274	\$177,774
Age 48	7.1%	\$176,399	\$150,899
E-9 at 20 years of service			
Age 38	13.3%	\$316,403	\$290,903
Age 40	13.1%	\$278,515	\$253,015
Age 42	12.8%	\$244,181	\$218,681
E-9 at 22 years of service			
Age 40	11.3%	\$299,349	\$273,849
Age 42	11.0%	\$262,125	\$236,625
Age 44	10.7%	\$228,654	\$203,154
E-9 at 24 years of service			
Age 42	9.8%	\$282,787	\$257,287
Age 44	9.4%	\$246,534	\$221,034
Age 46	9.0%	\$214,246	\$188,746
E-9 at 26 years of service			
Age 44	8.4%	\$266,068	\$240,568
Age 46	8.1%	\$231,317	\$205,817
Age 48	7.6%	\$200,738	\$175,238
E-9 at 28 years of service			
Age 46	7.3%	\$250,784	\$225,284
Age 48	6.9%	\$218,054	\$192,554
Age 50	6.5%	\$189,697	\$164,197
E-9 at 30 years of service			
Age 48	6.2%	\$230,248	\$204,748
Age 50	5.9%	\$201,129	\$175,629
Age 52	5.6%	\$176,452	\$150,952

a. We use the information provided at the DoD website, <http://pay2000.dtic.mil>.  
b. Reduction in retirement pay after excluding \$25,500.

Table 3. Bonus/REDUX choice for officers (30% tax rate)<sup>a</sup>

Characteristics at retirement	Implicit interest rate for bonus	Total reduction in after-tax retirement pay	"Interest" <sup>b</sup>
O-4 at 20 years of service			
Age 42	15.8%	\$288,581	\$267,581
Age 44	15.4%	\$251,868	\$230,868
Age 46	15.0%	\$218,701	\$119,701
O-5 at 20 years of service			
Age 42	16.8%	\$324,344	\$303,344
Age 44	16.5%	\$283,081	\$262,081
Age 46	16.1%	\$245,806	\$224,806
O-5 at 22 years of service			
Age 44	13.9%	\$302,959	\$281,959
Age 46	13.5%	\$263,170	\$242,170
Age 48	13.0%	\$227,558	\$206,558
O-5 at 24 years of service			
Age 46	11.6%	\$281,978	\$260,978
Age 48	11.2%	\$244,248	\$223,248
Age 50	10.6%	\$210,869	\$189,869
O-5 at 26 years of service			
Age 48	9.7%	\$257,052	\$236,052
Age 50	9.2%	\$222,750	\$201,750
Age 52	8.7%	\$192,880	\$171,880
O-6 at 24 years of service			
Age 46	12.4%	\$321,453	\$300,453
Age 48	12.0%	\$278,439	\$259,439
Age 50	11.4%	\$240,391	\$219,391
O-6 at 26 years of service			
Age 48	10.4%	\$297,743	\$276,743
Age 50	10.0%	\$258,011	\$237,011
Age 52	9.4%	\$223,409	\$202,409
O-6 at 28 years of service			
Age 50	8.9%	\$280,929	\$259,929
Age 52	8.4%	\$244,821	\$223,821

Table 3. Bonus/REDUX choice for officers (30% tax rate)<sup>a</sup>

Characteristics at retirement	Implicit interest rate for bonus	Total reduction in after-tax retirement pay	"Interest" <sup>b</sup>
Age 54	8.0%	\$214,060	\$193,060
O-6 at 30 years of service			
Age 52	7.5%	\$261,584	\$240,584
Age 54	7.3%	\$230,973	\$209,973
Age 56	7.1%	\$205,765	\$184,765

a. We use the information provided at the DoD website, <http://pay2000.dtic.mil>.

b. Reduction in retirement pay after excluding \$21,000.

Although all the interest rates are relatively high, it is probably the *amount* that is paid back in reduced after-tax retirement checks for an after-tax principal amount of \$25,500 for enlisted and \$21,000 for officers that is the most surprising. How do these amounts compare with those for a 30-year home mortgage? To find out, we went to [www.mortgagecalc.com](http://www.mortgagecalc.com). Table 4 shows that information.

Table 4. Payments on a 30-year, \$30,000 mortgage<sup>a</sup>

Interest rate	Total amount paid	Total interest payments
7.0%	\$71,853	\$41,853
7.5%	\$75,515	\$45,515
8.0%	\$79,247	\$49,247
8.5%	\$83,043	\$53,043
9.0%	\$86,899	\$56,899
9.5%	\$90,812	\$60,812
10.0%	\$94,778	\$64,778
10.5%	\$98,793	\$68,792

a. Information is from [www.mortgagecalc.com](http://www.mortgagecalc.com).

Even for a 9.0-percent 30-year home mortgage loan—a high interest rate by current standards—one pays back under 3 times the amount borrowed. For the after-tax portion of the \$30,000 bonus, tables 2 and 3 show that the servicemember is paying back 6.6 to over 12 times the

bonus or the amount borrowed!<sup>9</sup> Why is this? **Why are the repayment amounts so large?**

The easiest way to see why these repayment amounts are so large is to consider someone who dies very early in retirement. Indeed, if the servicemember dies at the retirement point, there is no repayment. The servicemember got the \$30,000 at the 15-year point but died before collecting any retirement monies.<sup>10</sup> It is because the average life expectancy is 79 years that the repayment amounts are so large.<sup>11</sup> The terms of this financial arrangement are *reduced retirement checks over the entire lifetime*.

The second reason the repayment amounts are so large is that one cannot pay off this “loan” early. Although we are analyzing the bonus/REDUX choice as a loan, it is not really a loan. It is really a partial, early cash-out of the servicemember’s retirement pay. As such, the option that most borrowers have of paying off a loan early is not available here. If the servicemember chooses bonus/REDUX, the servicemember who lives the normal lifespan loses tremendous amounts of retirement income. The servicemember who lives *longer* than the normal lifespan loses even more.

## The bonus/REDUX choice

Why would one want to reject the more generous High-3 retirement plan and select the bonus and associated reduced retirement payments under REDUX? There are two main reasons:

1. Servicemembers want the money now.

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9. All calculations are after taxes. An E-6 with 20 years of service who retires at age 42 pays back \$169,761 for the \$25,500 ( $\$169,761/\$25,500 = 6.6$ ); an E-9 who retires with 20 years of service at 38 year of age pays back 12.4 times the amount borrowed ( $\$316,403/\$25,500$ ).

10. We have not addressed survivor benefits in this analysis because their costs under the REDUX options have not been finalized.

11. We expect that servicemembers who retire may have a life expectancy above the average for all Americans of similar age. Thus, we probably understate the repayment amounts by our assumption of average life expectancy for all Americans who reach 40 years of age.

2. Servicemembers think that they can do better by investing the \$30,000 than by selecting the more generous retirement plan. Under this option, there is a notion that the newly opened federal government thrift savings plan (TSP) provides especially good investment opportunities.

We're going to address the second question, trying to provide some guidance on investment choices. First, however, let's clear up some misconceptions that may have arisen about the TSP.

Many private-sector employees, as well as civilian federal government employees, have long had the option of putting some of their pre-tax earnings into various types of savings plans designed for retirement. TSPs either supplement private-sector pensions, or, more likely, replace pensions. Retired individuals then supplement their Social Security in the retirement years by drawing down on the TSP.

For the first time, military members can now contribute pre-tax dollars to a TSP. By participating in the TSP, uniformed personnel can save additional monies for the years they are truly retired. Because TSPs were designed to provide savings for the older years, however, there are tax penalties for any withdrawals made before age 59.5.<sup>12</sup> In short, do not put savings in a TSP that you anticipate needing before your sixties.

Retirement savings plans such as the TSP share one feature with conventional military retirement plans—namely, the tax-sheltering of pre-retirement income. All contributions to the TSP are before tax; taxes are deferred, for both the principal and accumulated investment income, until the money is withdrawn. TSPs, however, lack the other two important features of the High-3 retirement plan:

- Risk-free, guaranteed payments or returns
- Full-inflation protection.

The TSP offered to military members allows the member to choose the fund, or funds, in which to invest the savings. These funds differ

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12. Under exceptional circumstances, the tax penalties for withdrawals before age 59.5 can be waived.

by the level of risk or variability of the investment returns. Funds that have higher risk will have higher average returns for long-term investors, but those returns will be more variable. None of the funds, however, have *inflation protection* or *guaranteed returns*.

## TSP and the \$30,000 continuation bonus

It is *merely a coincidence* that the first TSP opportunities for military members and the first choices between bonus/REDUX and High 3 are *occurring at the same time*. Because of the timing, however, many commentators have linked the two ideas, suggesting that servicemembers might elect bonus/REDUX and put the maximum amount of the bonus in a TSP account. Currently, the maximum is \$10,500, but there are proposals that would increase this maximum—or would allow the payout over several years—so that the entire bonus could be tax-sheltered in the TSP.

We find the linkage in the press between TSP and the \$30,000 partial cash-out of the High-3 pension to be puzzling. Why would servicemembers want to give up the inflation protection provided by military retirement and invest that money in non-inflation-protected TSPs? Why would they even consider a cash-out of part of their pension when the implicit rates of interest they will pay for this are about the same as the long-run return on the stock market? Why give up a riskless investment for a risky one if you can be expected to earn about the same amount on both? Although we see a TSP as an opportunity for servicemembers to put a little additional money away for their old age,<sup>13</sup> we cannot understand why members would to *cash out* some of their tax-sheltered, inflation-protected, guaranteed military retirement income for a TSP.

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13. Saving money in a TSP is an excellent idea as long as one does not have to reduce future retirement income in order to do it. For example, saving some reenlistment bonus money or special pay in a TSP is an excellent way to ensure greater income in one's older years.

## Other investment opportunities for the \$30,000

Servicemembers who elect the bonus/REDUX option and who want to save some of the money should think carefully about the purpose for the savings. A TSP will provide additional money after age 60. If, however, members want to have additional monies at the point of military retirement, or perhaps a few years after that when there are children's college expenses, they need a different savings vehicle. For savings in the medium time frame (at least 5 years), the federal government now offers inflation-protected bonds that are currently paying about 6.5 percent.<sup>14</sup> Financial specialists can guide members in their search for information about investment options.

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14. Inflation-protected bonds (I-bonds) and can be purchased at any bank in denominations of \$50 to \$10,000. The inflation adjustment is done semi-annually. While the initial investment is not tax-sheltered, all earnings on the bonds are tax-sheltered until the bonds are cashed.

## Appendix: Another way of looking at figures 1 through 3

In this appendix, we show the information in figures 1 through 3 differently. Instead of looking at the retirement pay streams directly, we look at the differences in retirement pay for the two plans. Specifically, we look at the payments under bonus/REDUX minus the payments under High 3. Figures 4 through 6 show the bonus payment at the age of the member at the 15-year-of-service point. Age at the 15-year-of-service point depends on when the member entered the military.

After showing the bonus payment, the figures give the yearly reduction in retired pay, from the point the member retires (for figure 4, this is at age 38). These are shown as negative amounts. Because the bonus/REDUX is set equal to High 3 at age 62, the difference between the two plans is zero at that point. The reductions in retired pay from age 63 to age 79 reflect the less than full indexing for inflation under bonus/REDUX.

Figure 4. Differences in after-tax retirement payments if bonus/REDUX is selected: E-7 retiring with 20 years of service at age 38, 15% tax bracket

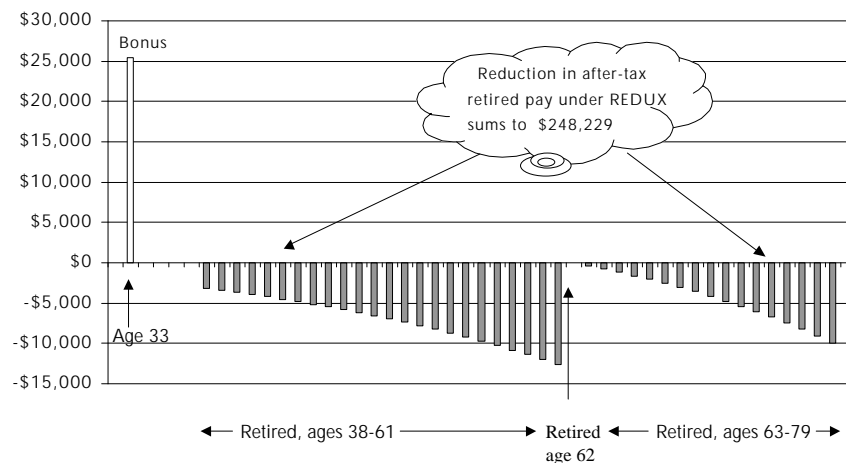




Figure 5. Differences in after-tax retirement payments if bonus/REDUX is selected: E-8 retiring with 24 years of service at age 42, 15% tax bracket

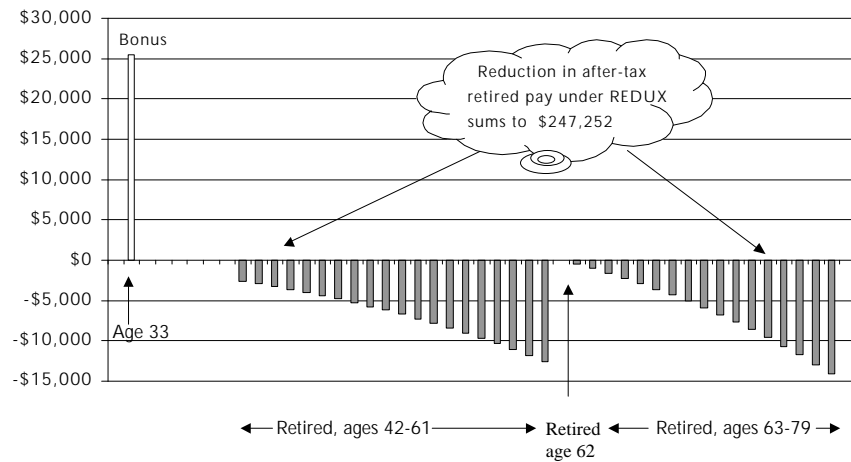


Figure 6. Differences in after-tax retirement payments if bonus/REDUX is selected: O-6 retiring with 26 years of service at age 50, 30% tax bracket

